

C L A I M S

What is claimed is:

1. A rotisserie for a cooking grill having a heat source creating a heated cooking region, the rotisserie comprising:

a) hot air engine, adjacent the heated cooking region, said engine turning an engine shaft peripheral to the heated cooking region, said rotisserie further comprising,

b) a spit, disposed within the heated cooking region, and fixedly connected to a spit shaft extending peripherally of the cooking region, and attached to the engine shaft, such that the turning of the engine shaft rotates the spit shaft and spit.

2. A rotisserie as in Claim 1, wherein the hot air engine comprises at least one cylinder, each cylinder comprising an air filled chamber with a drive piston displace-able within the chamber when the air is heated, each drive piston attached to a drive piston rod, which extends through the wall of the cylinder, to make a pivot-able connection to the engine shaft, such that the phased displacement of the drive pistons of the cylinders turns the engine shaft, which rotates the spit shaft.

3. A rotisserie comprising a heat source for creating a heated cooking region, a hot air engine comprising at least cylinders, each cylinder comprising an air-filled chamber disposed adjacent the heated cooking region, said air
5 filled chamber further comprising a drive piston displace-able within the chamber when the air is heated, each drive piston connected to a drive piston rod which extends through the wall of the cylinder, to make a pivot-able connection to an engine shaft peripheral to the cooking
10 region, such that the phased displacement of the drive piston rods turns the engine shaft, and a spit shaft, fixedly connected to a spit disposed within the cooking region, said spit shaft extending to, and attached to the engine shaft such that turning of the engine shaft rotates
15 the spit shaft.

4. A rotisserie comprising a spit shaft geared to the engine shaft of a hot air engine comprising at least two air-filled cylinders, each cylinder having a drive piston
20 displace-able by heated-air, each drive piston connected to a drive piston rod which extends through the wall of the cylinder to make a pivot-able connection to the engine shaft, such that the phased displacement of the drive

piston rods turns the engine shaft, which rotates the spit shaft.

5. A rotisserie within the lid of a cooking grill having
5 a heat source for heating a cooking region, the rotisserie comprising the rotisserie of Claim 1.

6. A thermal driven spit for cooking, the spit being
driven by the heat supplied for the cooking.

10 7. A rotisserie as in Claim 5, wherein the engine is secured within the lid such that it will lie adjacent the cooking region when the lid is disposed over the heat source.

15 8. A rotisserie as in Claim 5, wherein the spit shaft is connected to the engine shaft through a series of gears.

9. The rotisserie of Claim 2, further comprising a relief
20 valve through a wall of the cylinder at the end opposite the drive piston, which opens after the drive stroke of the drive piston, to exhaust the heated air and to take in air at ambient temperature.

10. The rotisserie of Claim 5, further comprising a relief valve through a wall of the cylinder at the end opposite the drive piston, which opens after the drive stroke of the drive piston, to exhaust the heated air and to take in air at ambient temperature.

11. The rotisserie of Claim 9, further comprising a spring loaded string anchor for the relief valves.

12. The rotisserie of Claim 10, further comprising a spring loaded string anchor for the relief valves.

13. The rotisserie of Claim 11, wherein the relief valve further comprises a relief valve piston attached to a piston rod, and the spring loaded string anchor comprises:

a string attached to the engine shaft, and wound between,

two wheels rotatable on their respective axes, which define a line generally parallel to the engine shaft, and past the opposite end of the cylinder from the engine shaft, and,

a third wheel, rotatable on its center axis, which is disposed on a slide bar, the outer end of which lies on the said line, said string wound about the third wheel and

attached to the end of the cylinder opposite the drive piston, and

a spring disposed adjacent the third wheel and generally perpendicular to the said line, and attached to the third wheel to urge it away from the cylinder, maintaining the relief valve in a closed position, and,

an engager disposed between the center axis of the third wheel and the cylinder, and capable of displacing the relief valve piston rod, and thereby the piston, so as to open the relief valve when the string tension overcomes the spring and the third wheel moves down the slide bar.

14. The rotisserie of Claim 12, wherein the relief valve further comprises a relief valve piston attached to a piston rod, and the spring loaded string anchor comprises:

a string attached to the engine shaft, and wound between,

two wheels rotatable on their respective axes, which define a line generally parallel to the engine shaft, and past the opposite end of the cylinder from the engine shaft, and,

a third wheel, rotatable on its center axis, which is disposed on a slide bar, the outer end of which lies on the said line, said string wound about the third wheel and

attached to the end of the cylinder opposite the drive piston, and

a spring disposed adjacent the third wheel and generally perpendicular to the said line, and attached to the third wheel to urge it away from the cylinder, maintaining the relief valve in a closed position, and,

an engager disposed between the center axis of the third wheel and the cylinder, and capable of displacing the relief valve piston rod, and thereby the piston, so as to open the relief valve when the spring tension overcomes the spring and the third wheel moves down the slide bar.

15. The rotisserie of Claim 11, wherein the relief valve further comprises a relief valve piston attached to a piston rod, and the spring loaded string anchor comprises:

a string having one end attached to the engine shaft, and the other end attached to a sliding shaft, moveable within a guide tube, attached to the rotisserie generally perpendicular to the engine shaft, said sliding shaft firmly attached to an engager, spring loaded away from the rotisserie, said engager attached to the relief piston rod, and capable of displacing the relief valve piston rod, and thereby the piston, so as to open the relief valve when the

sting tension overcomes the spring and the sliding shaft moves through the guide tube.

16. The rotisserie of Claim 12, wherein the relief valve
5 further comprises a relief valve piston attached to a piston rod, and the spring loaded string anchor comprises:

a string having one end attached to the engine shaft, and the other end attached to a sliding shaft, moveable within a guide tube, attached to the rotisserie generally
10 perpendicular to the engine shaft, said sliding shaft firmly attached to an engager, spring loaded away from the rotisserie, said engager attached to the relief piston rod, and capable of displacing the relief valve piston rod, and thereby the piston, so as to open the relief valve when the
15 sting tension overcomes the spring and the sliding shaft moves through the guide tube.